CLAIMS

What is claimed is:

1. A turbine engine comprising:

a case having an axis;

a compressor;

a turbine; and

a circumferential array of combustion chamber conduits, the conduits being downstream of the compressor and upstream of the turbine, the array being supported for continuous rotation relative to the case in a first direction about the axis to cyclically bring each conduit from a charging zone for receiving a charge from upstream to a discharging zone for downstream discharging of products of combustion of said charge.

2. The engine of claim 1 wherein there is a first airflow substantially through said compressor and turbine and wherein a first portion of the first airflow passes the combustion chamber conduits in the charges and a second portion of the first airflow bypasses combustion and a mass flow ratio of the first portion to the second portion is between 1:1 and 1:3.

3. The engine of claim 2 wherein the engine is a turbofan and the first airflow is a core airflow and a bypass airflow bypasses the compressor and turbine and a mass flow ratio of the bypass airflow to the core airflow is between 3:1 and 9:1.

4. The engine of claim 1 wherein said combustion comprises detonation.

5. The engine of claim 1 wherein the array is on a free spool and said rotation is driven by partially tangential direction of the products of combustion.

6. The engine of claim 5 wherein the conduits are at least partially tangentially directed.

7. The engine of claim 5 wherein the conduits are substantially longitudinally directed and the engine comprises a plurality of airfoils mounted on the free spool to partially tangentially direct the products of combustion.

8. The engine of claim 1 wherein said turbine and compressor each comprise high and low stages on respective high and low spools and the array is on a free spool.

9. The engine of claim 1 further comprising a plurality of igniters, each of which is positioned relative to an associated one of the conduits to ignite the combustion of the charge in said associated conduit.

10. The engine of claim 1 further comprising means for starting the rotation.

11. A turbofan engine comprising:

a fan;

a compressor;

a turbine coaxial with the compressor along an axis;

a pulsed combustion combustor receiving air from the compressor and outputting combustion gasses to the turbine and having:

a plurality of combustion chamber conduits held for rotation about the axis through a plurality of positions, including:

at least one charge receiving position for receiving a charge from upstream;

at least one initiation position for initiating combustion of the charge; and

at least one discharge position for downstream discharging of products of combustion of said charge.

12. The engine of claim 11 further comprising at least one fuel injector for injecting fuel into air from the compressor to form the charges.

13. The engine of claim 11 further comprising at least one ring of foils rotating with the conduits as a unit.

14. A pulsed combustion device comprising:

a support structure; and

a combustor carousel supported by the support structure and rotating relative thereto about an axis and comprising:

a plurality of combustion conduits in a circumferential array, each cyclically receiving a charge and discharging combustion products of the charge.

15. The device of claim 14 wherein the combustor carousel further comprises means for driving said rotation of the carousel.

16. The device of claim 14 wherein the combustor carousel further comprises plurality of foils for driving said rotation of the carousel.

17. The device of claim 16 wherein the foils are positioned to redirect the discharge from the combustion conduits.

18. The device of claim 14 wherein combustion of the charge comprises detonation.

19. The device of claim 14 being a turbine engine comprising:

a compressor upstream of the carousel; and

a turbine downstream of the carousel.

20. The device of claim 14 further comprising a nonrotating manifold portion having:

at least a first sector conveying air to an aligned transient first group of the combustion conduits; and

at least a second sector blocking upstream ends of an aligned transient second group of the combustion conduits from upstream communication.

21. The device of claim 14 wherein there are at least ten such combustion conduits.

22. The device of claim 14 wherein the combustion conduits have median cross-sectional areas between 12.9 cm^2 and 51.6 cm^2.

23. The device of claim 14 used in aircraft propulsion.